

WHAT IS CLAIMED IS:

1. A cutting apparatus, wherein a column is installed with a support having a cutting blade, said support is constituted to be capable of controlling a tilting angle of the cutting blade in a blade length direction, and the cutting blade is vertically movable relative to the support by a driving source provided at said support.

2. A cutting apparatus as set forth in claim 1, wherein a plurality of sorts of cutting blade units different in sorts of driving sources are constituted by unitizing the cutting blade, the support supporting the cutting blade, and the drive source provided above the support, said cutting blade unit being replaceably provided to the column, said respective cutting blade unit being capable of controlling the tilting angle of the cutting blade in the blade length direction.

3. A cutting apparatus as set forth in claim 2, wherein said driving source is a servomotor.

4. A cutting apparatus as set forth in claim 2, wherein said driving source is a hydraulic servomotor.

5. A cutting apparatus as set forth in claim 2 wherein said driving source is a linear-motor.

6. A cutting apparatus, wherein a sensing portion

movable in a blade length direction of a lowering cutting blade and constituting a parallel shape relative to a surface of an index table in a direction orthogonal to the blade length direction, is mounted on the surface of the index table for cutting a work-piece by the cutting apparatus as set forth in claim 1, and the index table, the sensing portion, the driving source of the cutting blade, and means for making the tilting angle of the support capable of controlling are respectively linked with a control portion; and

wherein said control portion arithmetically processes and stores a tilting angle data of the cutting blade in the blade length direction by detecting a plurality of points of a knife edge in the blade length direction of the cutting blade lowering from an original point position (top dead center), by said sensing portion mounted on the surface of the index table both before and after turning the index table by an angle of 90 degrees and further arithmetically processes and stores a parameter of a lowering amount data of the cutting blade in half cutting or cutting at respective time of moving the cutting blade by a prescribed pitch from a driving amount of the driving source of the cutting blade by detecting the knife edge by said sensing portion, by lowering the cutting blade

from the original point position (top dead center), after moving the cutting blade by a prescribed amount in a direction orthogonal to the blade length direction.

7. A cutting apparatus, wherein a sensing portion movable in a blade length direction of a lowering cutting blade, is mounted on a surface of a index table for cutting a work-piece by the cutting apparatus as set forth in claim 1, the index table, the sensing portion, the driving source of the cutting blade, and means capable of controlling the tilting angle of the support are respectively linked with a control portion; and

wherein said control portion arithmetically processes a tilting angle data of the cutting blade in the blade length direction by detecting a plurality of points of a knife edge in the blade length direction of the cutting blade lowering from an original point position (top dead center), by said sensing portion mounted on the surface of index table both before and after turning the index table by an angle of 90 degrees and further arithmetically processes and stores a parameter of a lowering amount data of the cutting blade in half cutting or cutting at respective time of moving the cutting blade by a prescribed pitch from a driving amount of

the driving source of the cutting blade by moving the cutting blade tilted by the tilting angle data and moving the cutting blade by a prescribed amount in a direction orthogonal to the blade length direction, lowering the cutting blade from the original point position (top dead center), and bringing a knife edge into line contact with the index table.

8. A cutting apparatus as set forth in claim 6 being said sensing portion capable of linearly controlling to move in the blade length direction and having a top portion in parallel to the surface of the index table facing to a direction orthogonal to the blade length direction.

9. A cutting apparatus as set forth in claim 7, wherein said sensing portion is capable of controlling to move linearly in the blade length direction and includes a top portion in parallel to the surface of the index table directed to a direction orthogonal to the blade length direction.

10. A cutting apparatus as set forth in claim 6, wherein said sensing portion is an optical sensor for detecting a position of the knife edge of the cutting blade, said optical sensor is provided in a movable body of an upward opening type capable of controlling to move in the blade length direction of the cutting blade, and said movable body includes an inner

space of a desired width size not interrupting movement of the cutting blade in a direction orthogonal to the blade length direction.

11. A cutting apparatus as set forth in claim 7, wherein said sensing portion is an optical sensor for detecting a position of the knife edge of the cutting blade, said optical sensor is provided in a movable body of an upward opening type capable of controlling to move in the blade length direction of the cutting blade, and said movable body includes an inner space of a desired width size not interrupting movement of the cutting blade in a direction orthogonal to the blade length direction.

12. A cutting apparatus as set forth in claim 7, wherein said sensing portion is a probe capable of controlling to move linearly in the blade length direction for detecting a displacement amount by being brought into contact with the knife edge of the cutting blade.

13. A cutting apparatus as set forth in claim 6, wherein said index table includes positioning means extractably when said sensing portion is mounted thereon respectively before and after turning the index table by an angle of 90 degrees.

14. A cutting apparatus as set forth in claim 7, wherein

said index table includes positioning means extractably when said sensing portion is mounted thereon respectively before and after turning the index table by an angle of 90 degrees.

15. A cutting apparatus, wherein an index table for cutting a work-piece by the cutting apparatus as set forth in claim 1, a driving source of the cutting blade, and means capable of controlling the tilting angle of the support are respectively linked with a control portion; and

wherein the control portion arithmetically processes a lowering amount data of the cutting blade from both original point positions (top dead center) from a driving amount of the driving source as a tilting angle data of the cutting blade in the blade length direction relative to a surface of the index table by bringing a knife edge of one end side and a knife edge of other end side in the cutting blade into contact with the surface of the index table, by lowering the cutting blade from the original point position (top dead center), in a state where said cutting blade is slanted by a same angle respectively on one end side and other end side in the blade length direction both before and after turning said index table by an angle of 90 degrees and arithmetically processes and stores a parameter of a lowering amount data of the cutting

blade in half cutting or cutting of a work-piece at respective time of moving the cutting blade by a prescribed pitch from a driving amount of the driving source of the cutting blade by bringing the knife edge of the cutting blade into line contact with the index table, by lowering the cutting blade from the original point position (top dead center) by moving the cutting blade tilted by the tilting angle data, by a prescribed amount in a direction orthogonal to the blade length direction.

16. A cutting apparatus as set forth in claim 6 wherein said sensing portion is utilized as means for detecting edge breakage of the knife edge of the cutting blade during operation in half cutting or cutting of the work-piece, when the edge breakage will amount to be equal to or more than an allowable range, transmitting means for transmitting information to an operator is linked therewith.

17. A cutting apparatus as set forth in claim 7, wherein said sensing portion is utilized as means for detecting edge breakage of the knife edge of the cutting blade during operation in half cutting or cutting of the work-piece and when the edge breakage will amount to be equal to or more than allowable range, a transmitting means for transmitting

information to an operator is linked therewith.

18. A cutting apparatus as set forth in claim 2 wherein said driving source is one of sources selected from a servomotor, a hydraulic servomotor, a linear motor, an air cylinder, and a cam.